Implementing BIAN Service Domains using the IFX Business Message Specification

Proof of Concept Report

Today's Agenda

Our primary goal today is to provide a high level review of the encouraging results that came from collaborative effort on the part of IFX Forum and BIAN.

We were able to demonstrate the ease with which these leading standards in the financial industry can be used to design quality SOA solutions in a typical banking IT environment.

- Introductions
- Concepts we wanted to prove
- Key concepts of BIAN and IFX standards
- What we did and how we did it
- Findings

Introducing – IFX Forum

- Since 1997 the mission of the IFX Forum has been to develop and promote adoption of an **open**, **interoperable** standard for the electronic exchange of financial data.

- The IFX Business Message Specification (BMS) is designed to meet the **business** requirements of the **global** financial services industry in the areas it addresses.

- The standard is based on Service Oriented Architecture (SOA) and object-oriented design principles. It is technology neutral but generally implemented using XML.

- IFX was a founding member of the IST Harmonization effort in 2003 which resulted in the formation of ISO 20022 in 2004 and the first payment initiation messages in that standard. IFX continues to work on ISO 20022 content as a submitting organization with Liaison A standing on TC68 and the participates in the 20022 RMG (governance) meetings.

- In 2011 IFX formed the Liaison and Interoperability Work Group (LIWG) specifically for managing interoperability with other standards and to spearhead efforts such as the proof of concept with BIAN.

Introducing –BIAN

- BIAN – the Banking Industry Architecture Network is a global not-for-profit association of currently 45 banks, software vendors and service providers

- BIAN's goal is to facilitate application interoperability (and reduce application portfolio complexity) within financial institutions through the definition of standard service operations that can be adopted by industry solution providers and banks

- In order to specify canonical service operations, BIAN defines generic bank capability 'building blocks' called Service Domains that each perform a unique and dicrete business role

- Any and all business activity can be modelled as collaborative interactions between selected Service Domains using their associated canonical Service Operations

- The Service Domains and their assocaited Service Operations are defined in semantic terms – they are intended to be implementation agnostic

- BIAN designs are captured using a UML representation that is founded on the ISO 20022 standard

- The BIAN semantic definitions provide sufficient detail to support an unambiguous mapping to the underlying systems messages where appropriate

- This BIAN/IFX PoC provides confirmation of the feasibility of mapping BIAN semantic definitions to proven implementation level message specifications
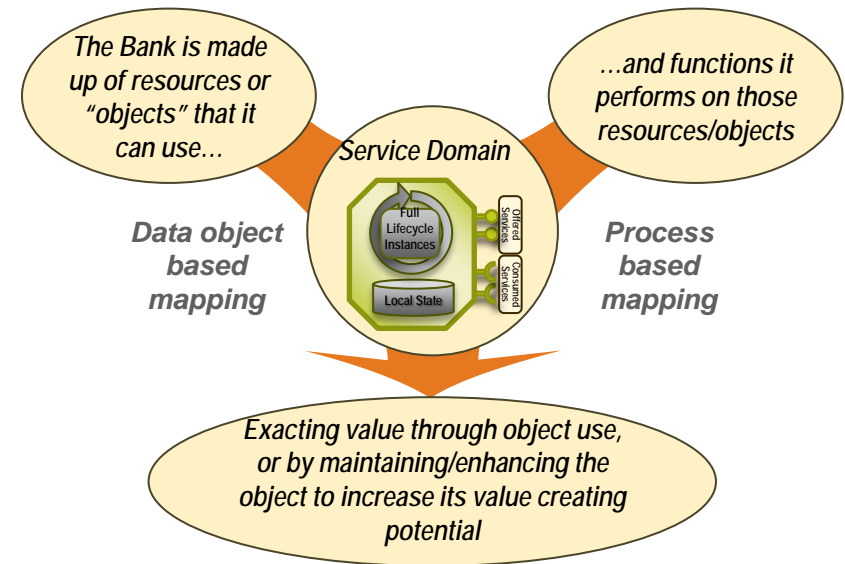
Introducing –BIAN Service Domains

The Service Domain is a business capability with several defining characteristics. The PoC has provided insights into mapping message standards to a Service Domain's service operations

BIAN Service Landscape

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The Periodic Table of Elements
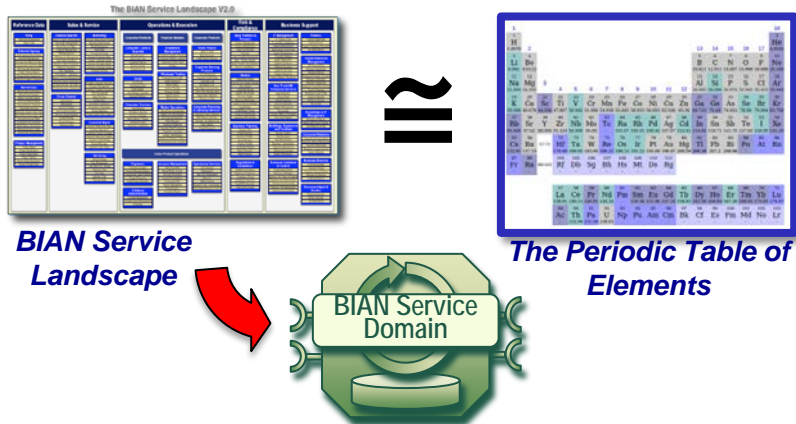
A BIAN Service Domain's role combines a business object with a particular type of action or 'functional pattern' performed on it. Either aspect provides the basis for the message mapping.

Service Domain properties:

◆ *a discrete business capability (not a process step)*
◆ *the 'peer' collection covers all possible business activity*
◆ *role combines a business object & a general function*
◆ *fulfills its role for the full life-cycle (with a 'control record')*
◆ *can have single or multiple active instances,*
◆ *the life cycle can have a short or long life-span*
◆ *acts as an operational service center*
◆ *capable of being outsourced (one 'sizing' test)*

The Bank is made up of resources or "objects" that it can use...

...and functions it performs on those resources/objects

Service Domain

Data object based mapping

Process based mapping

Exacting value through object use, or by maintaining/enhancing the object to increase its value creating potential

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IFX Objects and Messaging

- An IFX Object is a set of data that is organized according to a consistent pattern.

- IFX Objects are constructed from basic building blocks:
  - Data Elements - single pieces of information with defined data types
  - Data Aggregates - groups of related elements identified by a single name for convenience

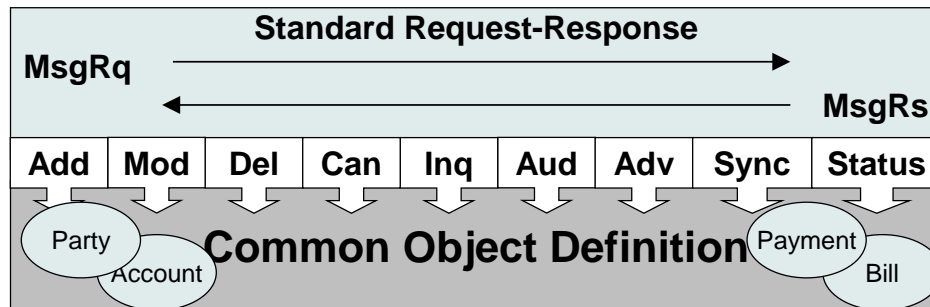**xxxRec**
xxxID
+xxxInfo
+xxxEnvr
+xxxStatus

xxxInfo
dataAttributes

xxxStatus
xxxStatusCode
StatusDesc
EffDt
ApprovalId
StatusModBy

xxxEnvr
Extends BaseEnvr
 CreatedDt
 CreateRefIdent
 ClientCreateDt
 ClientBusinessDt
 LastUpdateDt
 LastUpdateRqUID
 NetworkTrnData
 PointOfServiceData
ThisObjectEnvrData

Standard Request-Response

MsgRq ——————————▶

◀—————————— MsgRs

| Add | Mod | Del | Can | Inq | Aud | Adv | Sync | Status |

Common Object Definition

Party
Account
Payment
Bill

- IFX Objects support a well-defined set of operations (or methods) that cause objects to be created, modified and destroyed

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Concept to Prove

The collaboration of BIAN and IFX on this Proof of Concept (POC) was initiated with the intent to prove:

- that BIAN-defined service domains could be mapped to, and implemented using, a pre-existing service oriented messaging standard – in this case, the IFX Business Message Specification; and,
- that the IFX service framework could be used to implement a pre-existing view of standard business services – in this case BIAN service landscape and service domains.
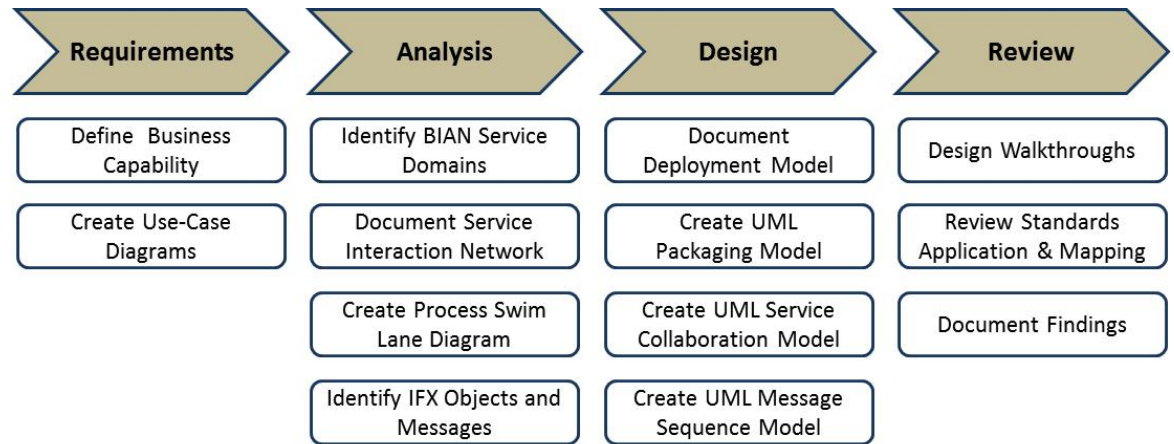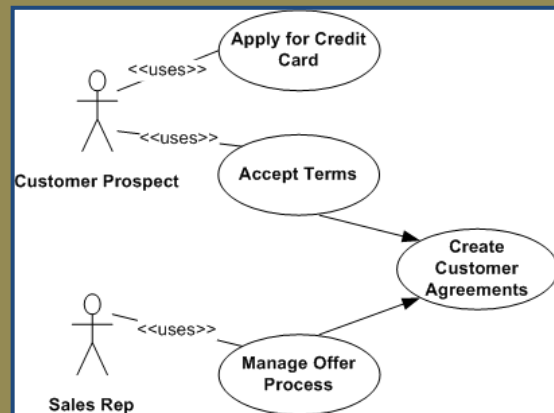
These concepts, once proven, can be generalized to conclude that either standard could be utilized within any banking infrastructure and set the stage to provide many benefits of standardization.

Process Overview

Form Joint Working Group ▸ Education and Cross Training ▸ Review Candidate Scenarios ▸ Choose Scenario to Develop ▸ **Customer Applies for – and gets – New Credit Card**

IFX and BIAN experts spent some time reviewing each others' material and chose a familiar use-case for further development.

New Card Setup

Requirements	Analysis	Design	Review
Define Business Capability	Identify BIAN Service Domains	Document Deployment Model	Design Walkthroughs
Create Use-Case Diagrams	Document Service Interaction Network	Create UML Packaging Model	Review Standards Application & Mapping
	Create Process Swim Lane Diagram	Create UML Service Collaboration Model	Document Findings
	Identify IFX Objects and Messages	Create UML Message Sequence Model	

We then engaged in a typical SDLC design effort and documented the results.

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Two Views of the Use Case

No two banks are exactly alike. For the POC to be meaningful, we concluded that it would be important to illustrate that the BIAN and IFX standards could be adapted to more than one implementation model of the business scenario.

Use Case Alternative 1
The *Manage Offer Process* directly invokes several other processes, including *Establish Accounts* and *Order Card*. *Check Credit* is viewed as an extension of the overall Check Eligibility process.
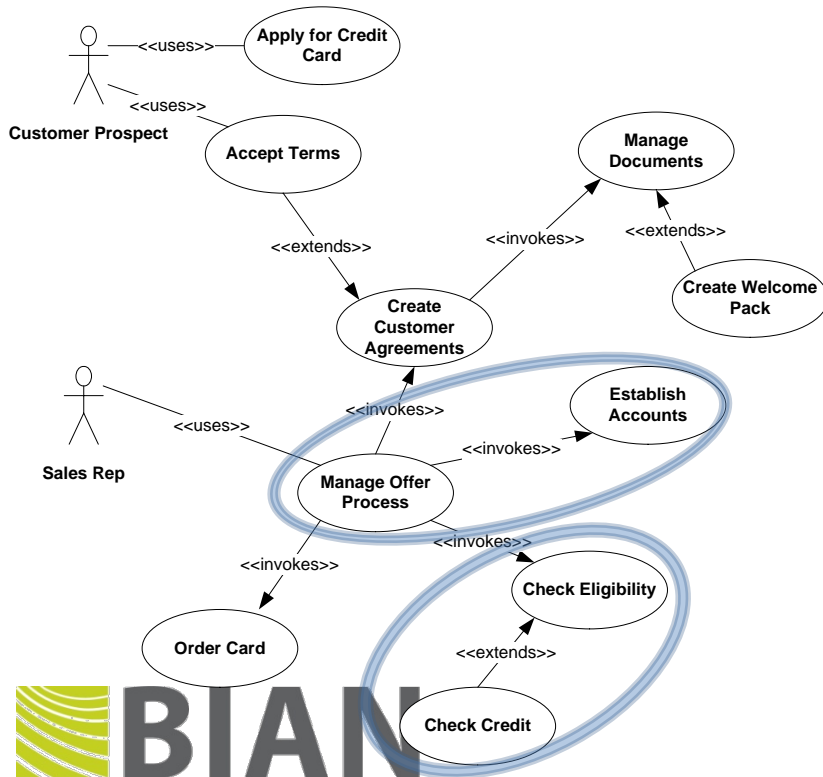
Use Case Alternative 2
In this model, *Check Credit* is a separate service not viewed as an extension of *Check Eligibility.* Also, *Card Facility* manages the account setup and card order. Lastly, this model shows that there are separate Customer and Card Product Agreements.
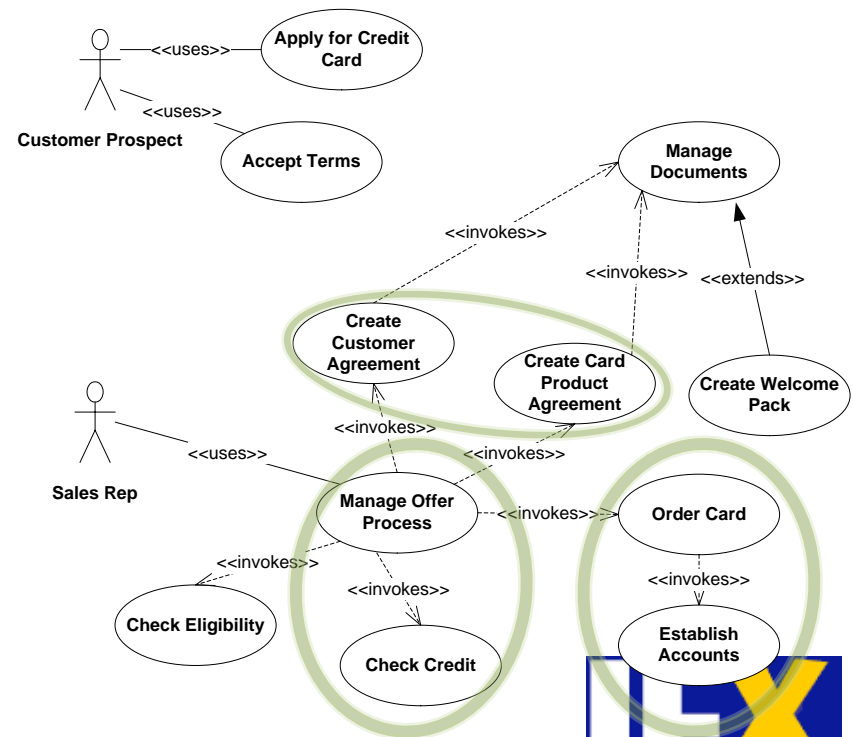
BIAN Service Domains in POC

These are the BIAN service domains that participate in the New Card Setup use case. They are highlighted in red in the diagram of the entire BIAN service landscape

Visualizing Service Deployment
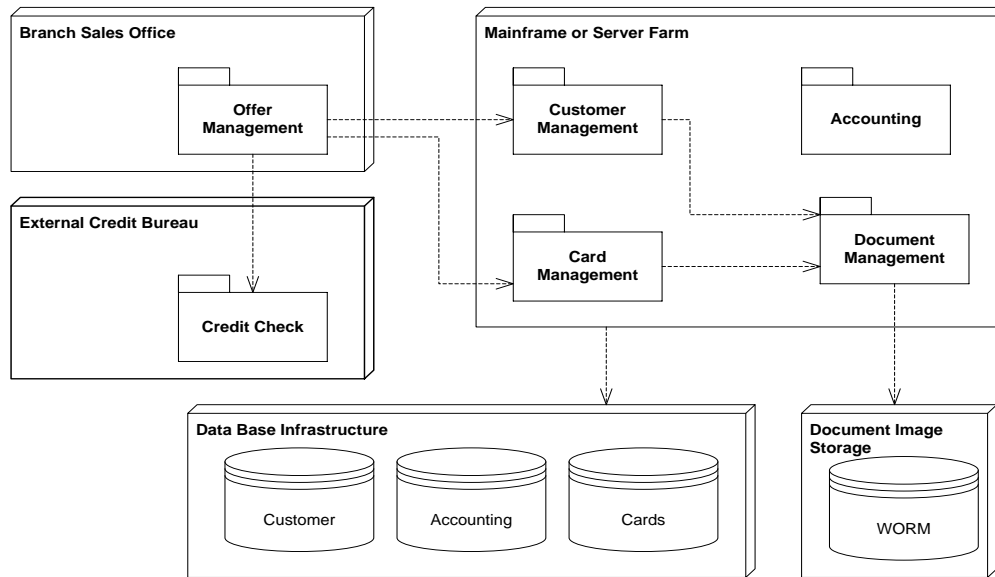
- In an SOA view, capabilities are packaged and distributed for the convenience of business operations and for effective use of technology resources.

- Properly granular definition of services – *such as those defined by BIAN* – allows for assembly of discreet functions to support a variety of business applications

A flexible framework for reliable message and data exchange is necessary
to properly implement
capabilities in an SOA environment.
The IFX Standard provides such a framework.
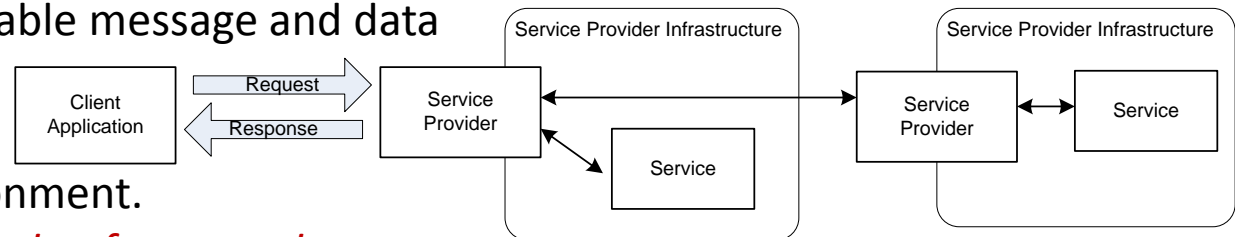
Mapping Standards

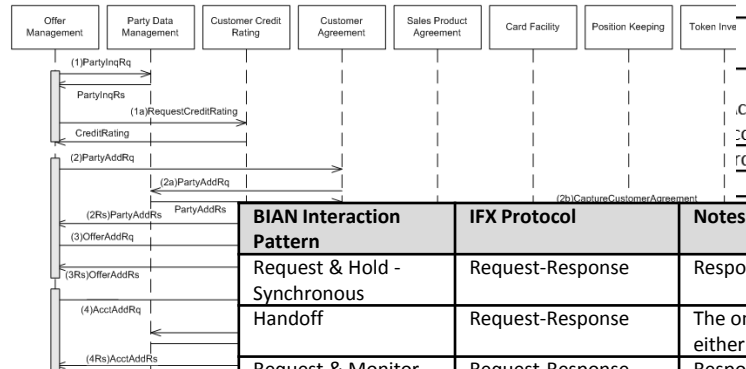| BIAN Service Domain	Action	IFX Message(s)	IFX Object(s)
Party Data Management	Identify Prospect	PartyAdd PartyInq	Party
Offer Management	Offer Product	OfferAdd	Offer
Customer Agreement	Execute Customer Agreement	PartyMod	Party
Document Services	Record Customer Agreement	PartyMod	Party
Sales Product Agreement	Execute Product Agreement	PartyCardRelAdd	PartyCar

Figure 3 - Message Sequence Diagram, Alternative 1

BIAN Domain	BIAN Control Record	IFX Object	Data Attributes
Party Data Management	Party REGISTRATION	Party	Close alignment as defined
Offer Management	Customer Offer EXECUTION	Offer	Close alignment as defined
Customer Agreement	Customer AGREEMENT	Party	There is a "customer established date" data attribute in IFX PartyInfo. See also Document Services and Correspondence below.
Sales Product Agreement	Sales Product AGREEMENT	Party	Similar to Customer Agreement.
Customer Credit Rating	Customer Credit QUALIFICATION	Acct	IFX links the rating to a specific Account for a customer
Card Facility	Credit/Charge Card FULFILLMENT	CardOrd	IFX maps different Card fulfillment capabilities to the card entity. See also Token Inventory and Object Relationships below.
Position Keeping	Transaction Record TRACKING	Acct	Maps to the Acct entity of IFX.

BIAN Interaction Pattern	IFX Protocol	Notes
Request & Hold - Synchronous	Request-Response	Respon
Handoff	Request-Response	The only Response expected is that the message was received; it is either ignored or not sent depending on implementation decisions.
Request & Monitor – asynchronous	Request-Response with AsyncRsData	Response is not immediately expected. The message response code will be [900] with a severity [Warn] and a token <AsyncRqUID> that can be used in later messages to retrieve results and processing status. See AsyncRsData in IFX BMS.
NA (Multi-step process request)	xxxOperRq-xxxOperRs	The IFX standard facilitates the desire to bundle a sequence of messages with *IFX Operations*. Such a request will include a list of messages along with instructions regarding processing – i.e.,<OperRules>. The operation rules indicate how to handle errors and warnings when processing the sequence of messages. (Abort, Continue, ReverseAll, ReverseProcessed.)
Make announcement	NA	Allows for subscribers to ingest a service report. It is possible to send IFX messages to any number of recipients and ignore responses, but there is no inherent Publish-Subscribe protocol in the IFX standard.

The PoC Report is loaded with tips and examples of how to map the IFX and BIAN standards to each other and specific business scenarios.

Findings

A key finding of this Proof of Concept is that both standards have the built-in modularity to adapt to the constraints of existing platforms without sacrificing integrity.

- The BIAN-defined service domains can be mapped to, and implemented using, a pre-existing service oriented messaging standard – in this case, the IFX Business Message Specification.

- The IFX message and service framework can be used to implement a pre-existing view of standard business services – in this case as defined in the BIAN service landscape and service domains.

Potential for Future Collaboration

Upon completion of the proof of concept we did a preliminary review of where the standards overlap addressing needs and opportunity in the overall banking landscape.

There are many areas where we believe there will be value in pursuing further work.
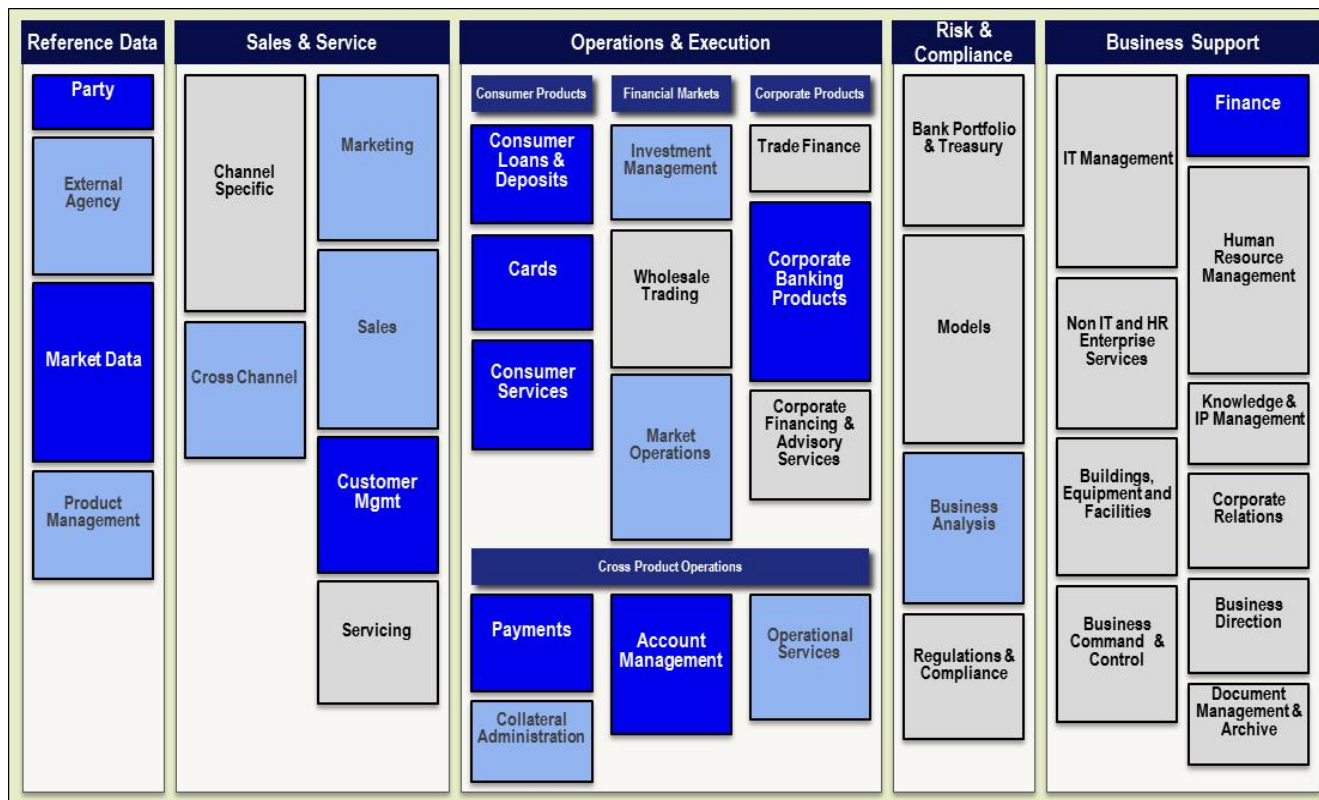
Questions

In addition to answering some questions here today, there is much more to be learned via the resources indicated below.

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IFX Forum	Judith Vanderkay, Director, Public Relations	info@ifxforum.org
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Gartner Group Analysts	Christy Pettey, Director , Public Relations Christy will direct you to knowledgeable analysts	christy.pettey@gartner.com

Reference Documents		
Topic	**Type of Document**	**Reference to Document**
IFX Standards	IFX Standard Online	http://www.ifxforum.org/standards/standard/
IFX SOA Implementation Guide	Work in progress	Expected to be published Q1 2014
BIAN Service Landscape	Version 2.5 landscape	http://bian.org/assets/bian-standards/bian-service-landscape-2-5/
BIAN-IFX Forum Proof of Concept Report and Webinar Presentation	PDF documents	www.ifxforum.org www.bian.org